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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/587,897 | 07/28/2006 | Hiroko Sakai | 293997US0PCT | 3513 |
| 22850 7590 09/13/2010 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | | |
| EXAMINER LAM, CATHY FONG FONG | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1784 | | | | |
| NOTIFICATION DATE | | DELIVERY MODE | | |
| 09/13/2010 | | ELECTRONIC | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/587,897

Applicant(s)

SAKAI ET AL.

Examiner

Cathy Lam

Art Unit

1784

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/22C)
Paper No(s)/Mail Date 04-08-2010
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

In view of the amendment and remarks filed on June 29, 2010, the pending claims continue to be unpatentable as following:

Election/Restrictions

1. This application contains claims 5-6 are drawn to an invention nonelected with traverse in the reply filed on Jan 27, 2010. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

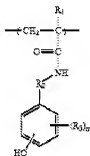
Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa et al (US 7482111) in view of Vikesland (US 4571374).

Nishikawa teaches a polymeric compound which is a negative radiation sensitive resin composition. The resin composition is comprised of a polymer with the following formula:



Wherein R₁ is an H atom or a methyl group;

R₂ is -(CH₂)_n, n is an integer of 0 to 3;

R₃ is an alkyl group of 1 to 4 Carbon atoms, and m is an integer of 0 to 4 (col 3 L 10-43).

The polymer also comprised of a monomer (C) which can either be a phenolic hydroxyl group compound or a carboxyl group compound (col 5 L 29 - col 6 L 41). The polymer further comprised of a crosslinking agent (D), a radiation activated radical polymerization initiator (E) and an organic solvent (F) (col 8 L 37-55, col 9 L 15 and col 7 L 15).

Nishikawa teaches that the radiation sensitive resin composition is used over a plated article such as an IC or a transfer film, etc. (col 1 L 6-15). The polymeric compound is useful as a photoresist for forming a bump or a wiring pattern over a substrate.

Nishikawa however does not teach using two layers of such polymeric compound layers over a substrate.

Vikesland teaches a dry film positive acting photoresist layers are used for forming wiring patterns.

The dry film photoresist layers comprised of at least two layers over a strippable carrier layer; i.e. 1st photoresist layer // 2nd photoresist layer // carrier layer. The first (outer or upper) layer is a positive acting photoresist layer, and the second (inner or lower) layer is a thermoplastic positive acting adhesive photoresist layer. The 2nd layer contains *a lower effective amount of photosolubilizer than* the 1st positive acting photoresist layer (col 2 L 23-30).

The 2nd (inner or lower) layer is also more crosslinkable than the 1st (outer or upper) layer. The 2nd layer is adhered to a substrate to be etched, and the 2nd layer is placed between the substrate and the 1st layer.

In view of the prior art teachings, one skill in the art would use a two layer photoresist layers system for patterning because a less radiation sensitive second photoresist layer acts as an adhesive layer for bonding the negative radiation sensitive resin (or radiation sensitive resin) to the substrate, and also minimizes undercuts during processing.

Response to Arguments

4. Applicant's arguments filed on June 29, 2010 have been fully considered but they are not persuasive. Applicant traverses the art rejections and raises the following issues:

- A. Nishikawa fails to disclose a two-layer laminated film comprising a lower layer comprising a radiation-nonsensitive resin composition.
- B. Vikesland fails to disclose a two-layer laminated film of the present invention.

In respond to the above issues:

A&B. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant has not shown any advantages of using a bi-layer laminate film with the inner layer is radiation non-sensitive and the outer layer a radiation sensitive. It is believed that the art rejection was proper and should be sustained.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cathy Lam/
Primary Examiner, Art Unit 1784